10-14; and in Figures 1-7. Applicant believes that no new matter is added. In light of the amendments and remarks presented herein, reconsideration and allowance of the claims under consideration is respectfully requested.

The Rejection Under 35 U.S.C. § 112, First Paragraph

Claims 1-3 were rejected under 35 U.S.C. § 112, first paragraph. Applicant respectfully disagrees that the specification is not enabling for screening for a disease when the disease is any supercolonic disease, cancer, or a cancer selected from the group consisting of: prostate, liver, and lymphoma, or pre-cancer, or for the determination of nucleic acid as a whole comprising shed cells or cellular debris from any bodily source and comprising any length.

Applicant respectfully submits that the proper standard under 35 U.S.C. § 112, first paragraph, is whether one skilled in the art could make and use the invention without undue experimentation based on the disclosure in the patent application coupled with information known in the art. This standard does not require an applicant to describe in an application every conceivable embodiment of the invention. *United States v. Telectronics, Inc.*, 857 F. 2d 778, 8 USPQ2d 1217. (See MPEP 2164.06(a)). Claims are not rejected as unduly broad under 35 U.S.C. § 112 for noninclusion of limitations dealing with factors which must be presumed to be within the level of ordinary skill in the art; the claims need not recite such factors where one of ordinary skill in the art to whom the specification and claims are directed would consider them obvious. *In re Skrivan*, 427 F.2d 801, 166 U.S.P.Q. 85 (CCPA 1970); *Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 3 U.S.P.Q.2d 1737 (Fed. Cir. 1987). (See MPEP 2164.08). The scope of the enablement should bear a "reasonable correlation" to the scope of the claims. *In re Fisher*, 166 U.S.P.Q. 18, 24 (CCPA 1970).

However, in order to advance prosecution of this application, and without prejudice to pursuing claims to such subject matter in the future, Applicant amends independent claim 1 to recite, in part, that a patient is identified as having cancer or adenoma if an amount of nucleic acid greater than about 200 bp in length in a patient sample in an amount greater than an amount expected from a patient who does not have cancer or adenoma.

Applicant believes that the instant specification provides adequate support to enable one skilled in the art to screen a patient for cancer or adenoma, as defined by claim 1. The application teaches that the integrity of nucleic acids in shed cells or cellular debris is indicative of disease. Applicants teach how a sample is isolated, how integrity is determined, and the relevant standard for assessing a positive result. (See, Example 1 and Figures 1-7). Accordingly, Applicant respectfully submit that claim 1 is enabled by the specification. Furthermore, claim 3 is also enabled as it depends directly from claim 1. Accordingly, Applicant respectfully submits that claims 1 and 3 comport fully with the requirements of 35 U.S.C. §112, first paragraph and, therefore, respectfully request that this rejection be reconsidered and withdrawn.

The Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1-3 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the recitation of "supercolonic disease." The Office Action contends that "[i]t is unclear whether supercolonic disease refers to any disease of the colon, or to any disease of any organ in the vicinity of the colon, or to any disease in addition to or not including the colon."

Without acquiescing to the rejection, however, in order to advance prosecution, Applicant amends independent claim 1 to replace "supercolonic disease" with "cancer or adenoma." Applicant believes that the terms cancer and adenoma were well known to one skilled in the art at the time the application was filed. Accordingly, Applicant requests that this rejection be reconsidered and withdrawn.

Claims 1-3 were also rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the recitation of "integrity." Specifically, the Office Action contends that "[i]t is unclear as to whether integrity refers to the length of a nucleic acid, the single or double strandedness, the configuration, or the sequence of a nucleic acid." Applicant amends claim 1 to clarify claimed subject matter by replacing "integrity" with "amount of nucleic acid greater than about 200 bp in length ..." Applicant respectfully submits that the amended claims are both clear and definite in that the methods of the invention for screening a patient for cancer or adenoma, as defined in the specification, can be carried out by determining an amount of nucleic acid greater than about 200 bp in length present in a patient sample and identifying the patient as having cancer or adenoma if the amount of nucleic acid is greater than an amount of nucleic acid

expected to be present in a sample obtained from a patient who does not have cancer or adenoma. Accordingly, Applicant respectfully requests that his rejection be reconsidered and withdrawn.

Additionally, claims 1-3 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite over the recitation of "intact." According to the Office Action, it is unclear whether "[i]ntact nucleic acids refer to only full length nucleic acids, or to nucleic acids which do not include a mutation or translocation, or to nucleic acids of at least 200 bp,..." Without acquiescing to this rejection, however in order to advance prosecution of this application, Applicant amends claim 1 to recite, in part, determination of amount of nucleic acid greater than about 200 bp in length in a patient sample. In view of the foregoing, Applicant respectfully submits that claims 1 and 3 are clear and definite. Applicant believes that the specification as filed provides adequate support for screening a patient for cancer or adenoma by determining an amount of nucleic acid greater than about 200 bp in length and identifying the patient sample as being positive for cancer or adenoma if the amount of nucleic acid is greater than an amount of nucleic acid expected to be present in a sample obtained form a patient who does not have the cancer or adenoma. Accordingly, Applicant requests that this rejection be reconsidered and withdrawn.

Claims 1-3 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite over the recitation of "predetermined threshold." As discussed above, amended claim 1 is drawn toward identifying a patient as having cancer or adenoma if an amount of a nucleic acid greater than about 200 bp in a patient sample is greater than an amount expected to be present in a sample obtained from a patient who does not have cancer or adenoma. Accordingly, Applicant respectfully requests that this rejection be reconsidered and withdrawn.

Claims 1-3 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite over the recitation of "pre-cancer." According to the Office Action, "[i]t is unclear whether the term (precancer) encompasses benign cancers or dysplasias, or also includes normal cells. Without acquiescing to this rejection, Applicant respectfully submits that the term pre-cancer was very well known in the art when the application was filed. However, in order to advance prosecution, Applicant amends claim 1 to recite "cancer or adenoma." Applicant believes that

the specification as filed provides adequate support for screening a patient for cancer or adenoma, as defined by amended claim 1. Accordingly, Applicant requests that this rejection be reconsidered and withdrawn.

In view of the foregoing, Applicant respectfully submits that amended claims 1 and 3 are clear and definite, and respectfully requests that all the rejections under 35 U.S.C. § 112, second paragraph be reconsidered and withdrawn.

The Rejection Under 35 U.S.C. § 102

Claims 1 and 2 were rejected under 35 U.S.C. § 102(b) as being anticipated by Villa et al. (Gasteroenterology, 1996) ("Villa"). Anticipation under 35 U.S.C. § 102 requires that all of the elements and limitations of the claim(s) at issue be found within a single prior art reference. Carella v. Starlight Archery and Pro Line Co., 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986). In order to anticipate a claim, the identical invention must be shown in as complete detail as is contained in the patent claim. Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicant submits that Villa reports on a method for detecting mutations in the K-ras gene in DNA obtained from stool samples of patients. Specifically, Villa provides a test based on determination of K-ras mutations in DNA obtained from stool samples of patients, for identification of patients with colorectal carcinoma. However, Villa fails to teach methods for screening for cancer or adenoma based on determining an amount of nucleic acid greater than about 200 bp present in a patient sample, where the amount of nucleic acid is greater than an amount of nucleic acid expected to be present in a sample obtained from a patient who does not have cancer or adenoma.

Specifically, the methods reported in Villa involve detecting and evaluating disease-associated nucleic acids. For example, lines 6-9 of the abstract in Villa reports that "Two hundred thirty consecutive patients were studied by K-ras amplification on stool-derived DNA...." Villa focuses on the presence of specific mutant or disease associated DNA in a patient sample and fails to teach or suggest detecting cancer or adenoma simply based on

determination of an amount of nucleic acid greater than about 200 bp in length present in a patient sample.

Accordingly, Applicant respectfully submits that Villa fails to disclose, teach, or suggest all limitations of claim 1. On the basis of the foregoing, Applicant respectfully submits that Villa does not meet the standard for a *prima facie* case of anticipation for independent claim. Therefore, Applicant respectfully requests that the rejection of claim 1 under 35 U.S.C. § 102 be reconsidered and withdrawn.

Non-statutory double patenting rejections

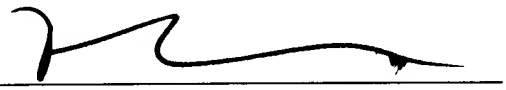
Claims 1-3 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-33 of U.S. Patent No. 6,143,529. Claims 1-3 were also rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 7,8, and 10-14 of co-pending Application No. 09/545,162.

Applicants respectfully submit that submission of a terminal disclaimer prior to a determination of allowable subject matter is inappropriate. If the claims are amended prior to a determination of allowability, they may no longer be subject to this requirement. Also, Applicant notes that a terminal disclaimer over a pending application is improper.

Conclusion

Applicant respectfully requests that the rejections under 35 U.S.C. §§ 112, and 102 be withdrawn on the basis of the foregoing amendments and remarks. Applicant submits that pending claims 1, 3 and 4 are in condition for allowance, and requests early favorable action. Applicant requests that the Examiner contact the undersigned prior to issuing a further action on the merits in this case.

Respectfully submitted,



Date: January 10, 2003
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MARKED-UP COPY OF AMENDMENTS TO THE SPECIFICATION

Paragraph for page 1, lines 1-3 (priority claim)

Related Applications

This application claims priority to and the benefit of U.S.S.N. 60/169,457, filed December 7, 1999, the entire disclosure of which is incorporated herein by reference.

MARKED-UP COPY OF AMENDMENTS TO THE CLAIMS

1. (Amended) A method for screening for [a supercolonic disease] cancer or adenoma in a patient, the method comprising the steps of:

determining [integrity of nucleic acids] an amount of nucleic acid greater than about 200 bp in length present in a patient sample comprising shed cells or cellular debris; and

identifying said patient as having [disease] cancer or adenoma if said amount is greater than an amount of nucleic acid expected to be present in a sample obtained from a patient who does not have cancer or adenoma [intact nucleic acids are present in said sample in an amount greater than a predetermined threshold].

3. (Amended) The method of claim [2] 1, wherein said cancer or adenoma is selected from the group consisting of colon cancer, lung cancer, esophageal cancer, [prostate cancer,] stomach cancer, pancreatic cancer, cancer of the bile duct, and cancer of the duodenum[, and lymphoma].

4. (New) The method of claim 1, wherein the nucleic acid is at least 1.3 Kb in length.